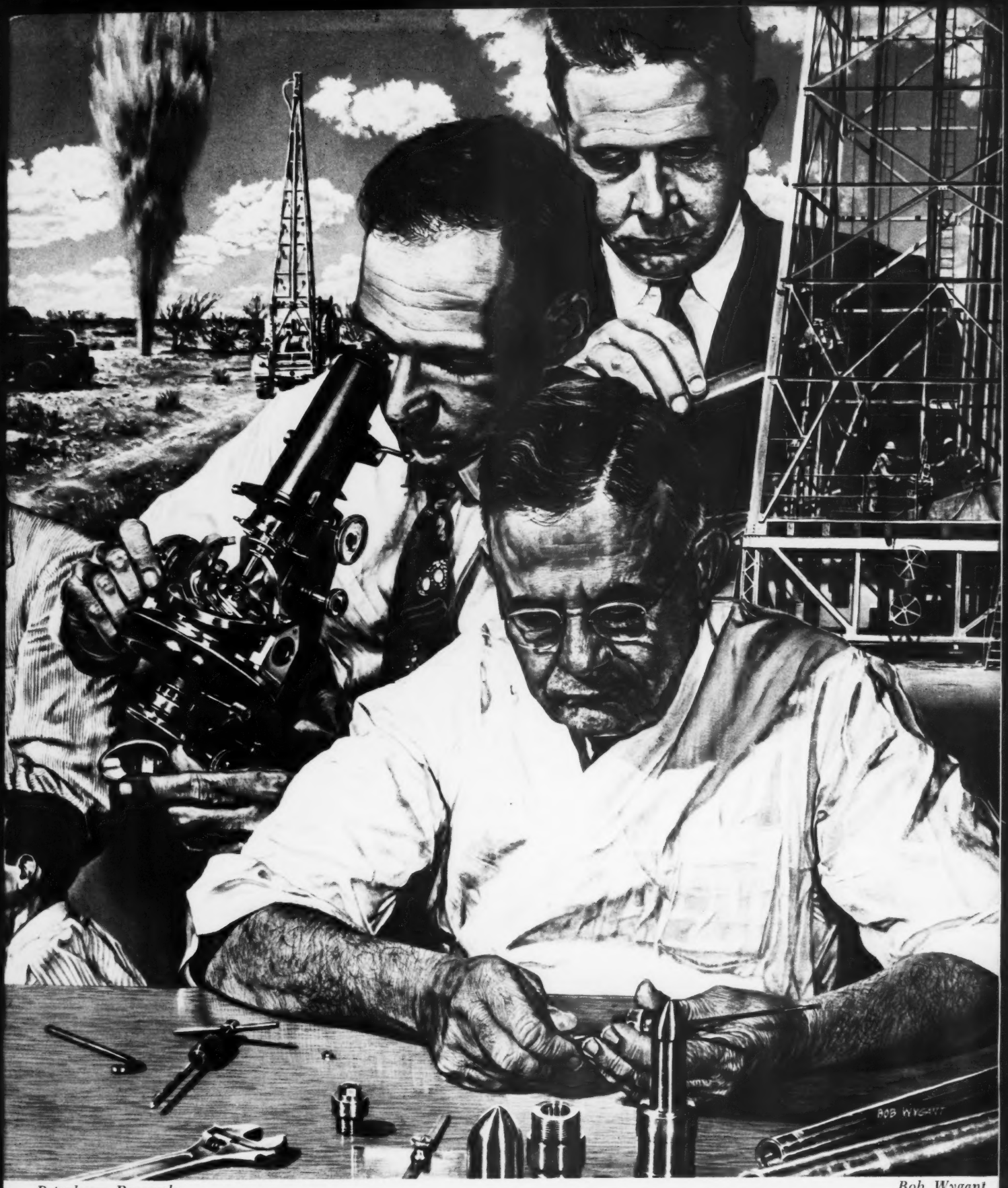

Petroleum Research — *Bob Wygant*

The HUMBLE WAY

SEPTEMBER-OCTOBER, 1954

HUMBLE
HOUSTON RESEARCH CENTER

The HUMBLE WAY

September-October, 1954

Vol. X No. 3

A NEW CENTER FOR RESEARCH

"IN A spirit of humility and yet of courageous endeavor, we dedicate this Humble Research Center to the loyal, faithful men and women who will use it through the years, and in a broader sense to progress in scientific research and engineering development in petroleum exploration, production, and transportation and to the promotion of creative thinking and knowledge in these fields, with the hope and anticipation that in this way we may contribute to our industrial progress and to the advancement of human welfare."

With those words President Hines H. Baker officially dedicated Humble's new Houston Research Center on September 11. The dedication ceremony marked the formal opening of the recently completed Center which now houses the Company's production and exploration research activities.

In his dedication address, Mr. Baker cited some of the significant accomplishments of petroleum research. "Humble's advancement to its present position in the oil industry is due largely to the contributions of research," he acknowledged.

Research in the petroleum industry has meant much to the progress of our civilization, he pointed out. In 1917, the nation's oil reserves totalled less than six billion barrels and the "prophets" thought that another two and a half billion barrels might be found. But with improved methods and increased knowledge, since that time we have found another 73 billion barrels and still have available in proven reserves 34 billion barrels.

Progress through research has also vastly increased the recovery of oil from the reservoirs. Improved equipment and methods have led to lower costs of discovery and recovery. Wider spacing of wells has been adopted as a result of the knowledge gained through research and development.

Citing the continuing improvements in oil product quality, he reminded that the petroleum industry has transformed our social and business lives. "We owe the research men and scientists a debt of gratitude for their contributions," he said.

Mr. Baker was introduced by Dr. H. Dayton Wilde, Manager of Research and Development, who welcomed the visitors and served as master of ceremonies.

HUMBLE RESEARCH

The Houston Research Center provides facilities for research activities of the Production and Exploration Departments. Refining Department's research projects are carried on at the Baytown Research Center. Sales Department maintains a special products research laboratory at the Special Products Plant in Houston. Humble Pipe Line Company has a research station at Pierce Junction, near Houston.

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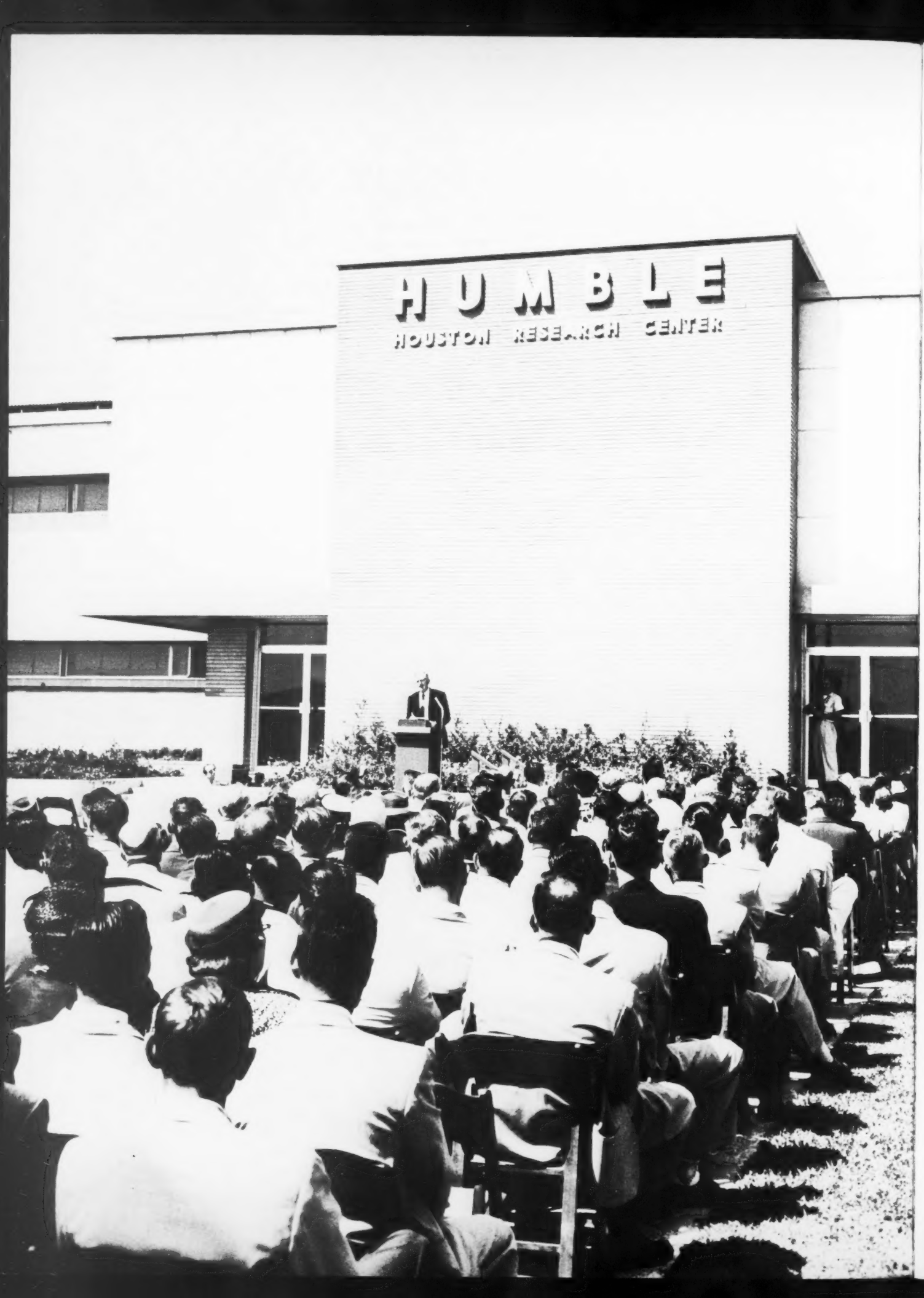
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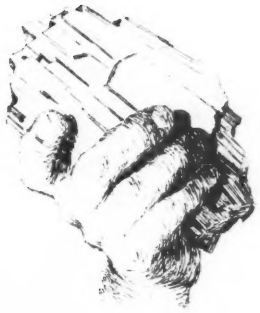

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Attractively modern in appearance, this main building at Houston Research Center contains more than 300 carefully planned laboratories, offices, and workshops.

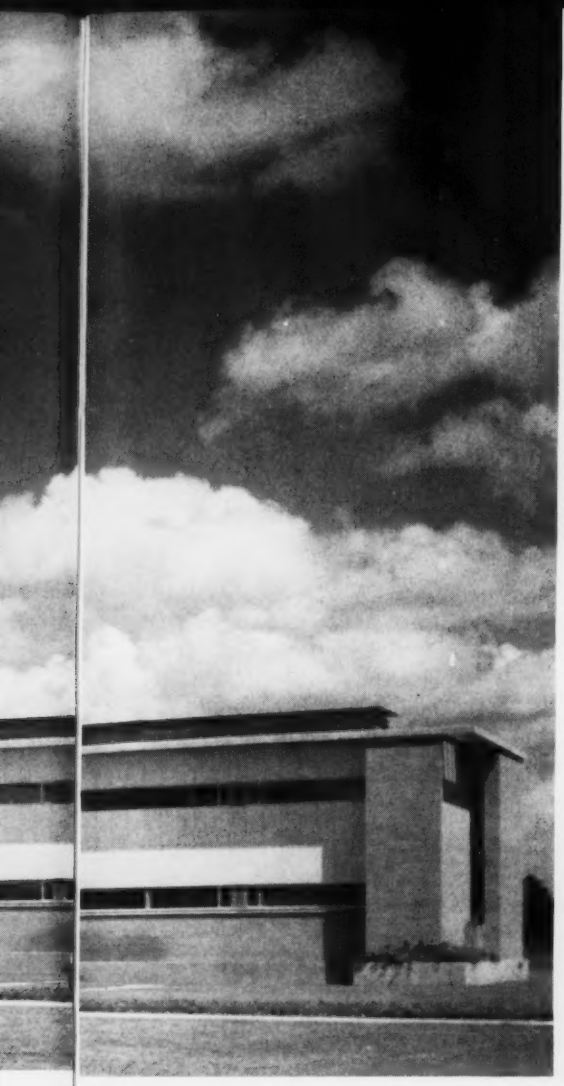
Impressive lobby and reception foyer are located on second floor, slightly above ground level; photomural is reproduced on cover of this issue of the Humble Way.

New Center Combines

To the men and women who occupy it, the Houston Research Center is the fulfillment of a dream of many years. Here, for the first time, they have laboratories, shops, and offices that were designed specifically for them and their work. From the entrance foyer to the warehouse area every feature and facility of the Center has been planned with painstaking care.

The main building, which has more than 300 rooms on its three floor levels, contains the offices, laboratories, and most of the shops. Each laboratory is the right size and is equipped with the proper facilities for a specific kind of research work. Offices adjoin the laboratories, so each group of researchers can carry on its projects without distraction. Administrative offices are conveniently grouped in each wing of the building, with conference rooms nearby.

The shop area is at ground level in



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Beauty and Utility

the main building adjacent to the seven enclosed truck bays which open onto the paved areaway at the rear. One of the truck bays is sealed off from the others to facilitate work on the particularly sensitive truck-mounted instruments used in geophysical exploration work.

Behind the main building is the service building, which provides warehouse space for various research and operating groups. Here also are a seismic cable shop, carpenter shop, dip meter room, two core cutting rooms, and a cafeteria.

Although the more than 330 employees at the Center are carrying on activities ranging from heavy machine work to pure creative thinking, the overall impression is one of orderliness. If ever there was a building where there is "a place for everything and everything in its place," this is it.

Houston Research Library at Center is well organized and catalogued to provide technical and scientific information without wasting researchers' time or effort.

Assembly room on third floor of the Research Center can seat a hundred people in comfort, is equipped with a public address system and film projection facilities.

Chemical testing laboratory, one of the largest in the Center, is part of Service Laboratory which does routine testing for various operating groups in the Company.

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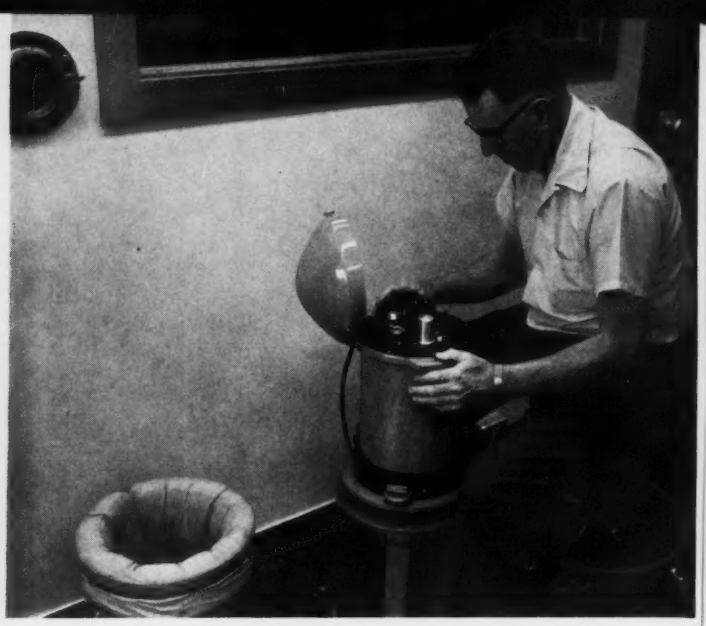
GEOPHYSICS RESEARCH projects include the experimental use of magnetic tape equipment, above, in efforts to obtain more useful data from seismic exploration. Much research work is directed toward improving interpretation of geophysical data.



Gravity meter, designed and built by Humble men, is checked before being sent into field. Geophysics research engineers and scientists are constantly seeking to improve the instruments used in seismic, gravity, and magnetic exploration.

Research helps

TO FIND MORE OIL

Much of the work in progress at the Houston Research Center is devoted to helping make the search for oil more successful. Already the increased knowledge and skill of geologists and geophysicists has reduced the guesswork in oil exploration, but oil-finding techniques have not yet been perfected.

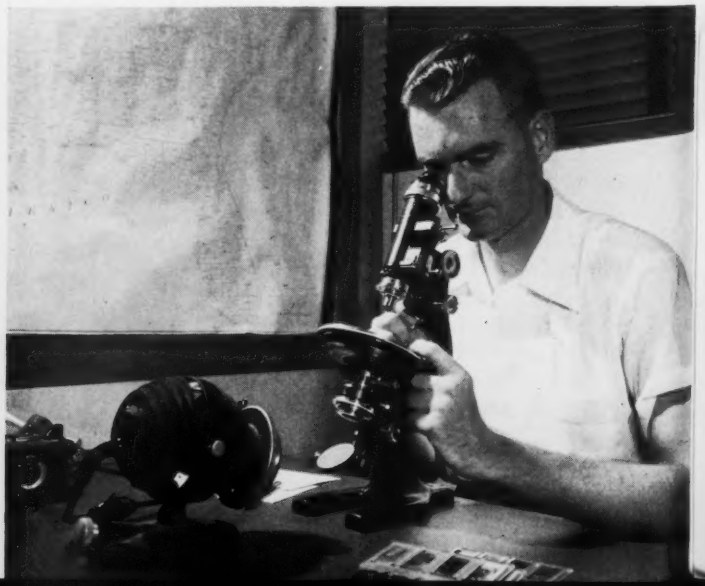
Three research groups at the Center are carrying on continuous studies and investigations in an effort to remove the imperfections and reduce the number of dry holes.

One is the Geophysics Research group, whose primary task is to improve existing methods and develop new methods of applying measurements of physical properties of the earth and earth materials to the search for oil.

Another is the Geologic Research group, whose purpose

GEOLOGIC RESEARCH contributes new information to add to the basic fund of geologic knowledge. Here a laboratory assistant uses abrasive wheel to grind a rock fragment down to paper-thin section in preparation for microscopic study.

Petrographic microscope is used to examine thin section of rock fragment. Petrographic analyses have given geologists a better understanding of the character of sedimentary and igneous rocks, knowledge of use to men seeking clues to oil.



Special trucks and other vehicles are fitted out in geophysics shops at Houston Research Center for operation in field. The large truck at right is equipped for experimental work on problems of well-logging and other below-surface testing.

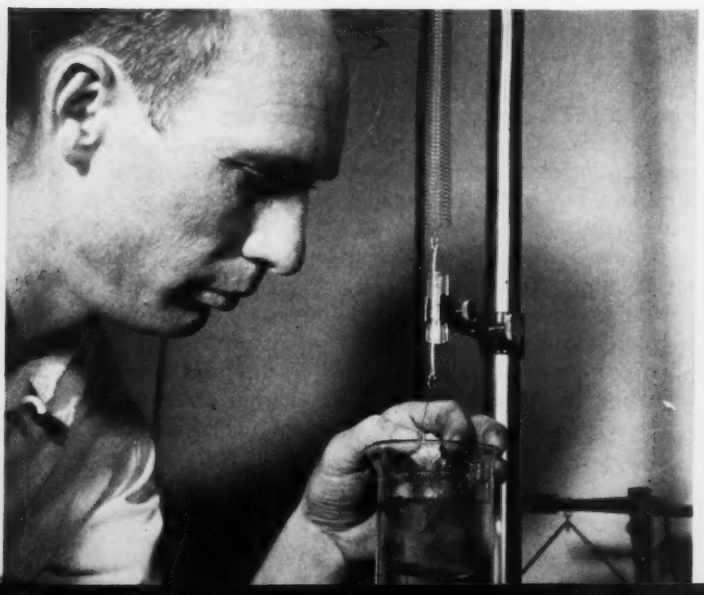
is to improve the application of the fundamental principles of geology in exploring for oil and gas, and to develop new ideas to aid the oil-finding effort.

Working closely with the Geologic Research group is a special group of scientists who are conducting studies in the field of Geochemical Research. Their work is primarily fundamental research in which methods of the chemical sciences are applied in investigations of geologic problems.

Accuracy in oil-finding methods becomes more and more important as the search is extended into less accessible areas and to deeper strata of the earth's crust. Perhaps it will never be possible to locate a site and say with certainty that oil lies below, but Humble's exploration research scientists will continue to strive toward that goal.

GEOCHEMICAL RESEARCH group is engaged in long-range studies of clay minerals, carbonate rocks, and geologic age determination in efforts to reconstruct geologic history as an aid in the search for oil. Instrument pictured above is used in taking measurements of low level radioactivity for geologic age determination studies. Emission spectroscope, below, is another of the sensitive instruments used by the geochemical research scientists. Fundamental research such as these studies can contribute much to geologic knowledge and help oil-finding effort.

Testing sample of rock sent in from field, research laboratory technician measures its specific gravity. In addition to broad scope investigations, the Geologic Research group works on specific problems, performs many useful functions.



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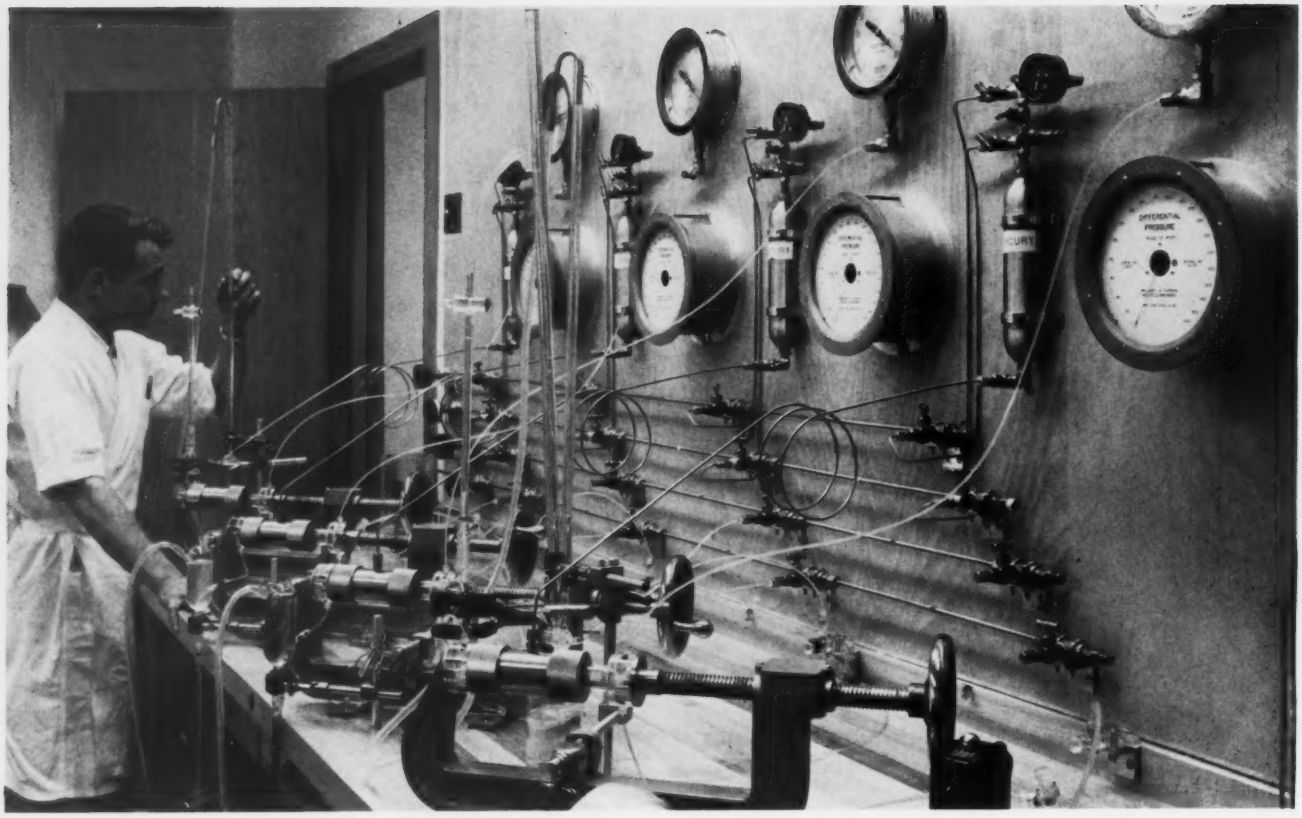
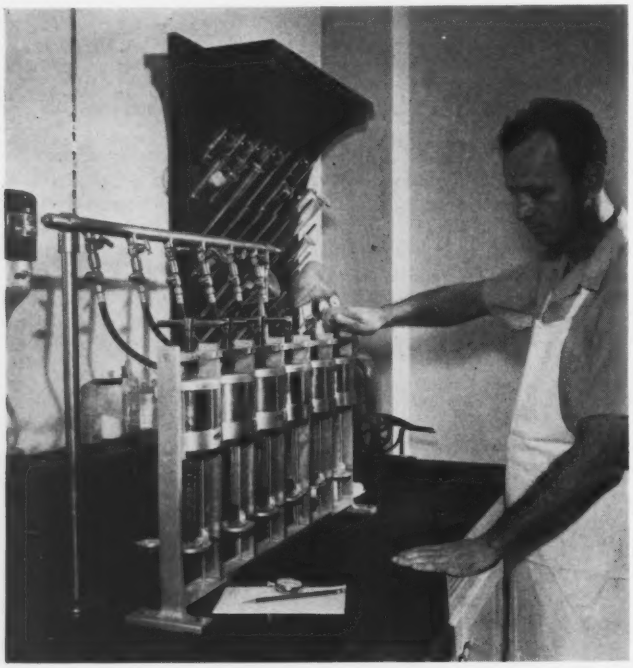


Core flooding room is part of reservoir engineering laboratory at the Research Center. From knowledge gained through research, petroleum engineers can now calculate the maximum efficient rate of production for any individual oil or gas field, and prescribe the most practical operating methods for the field and its producing wells. From studies of subsurface fluid samples, cores, and other factors, engineers can determine what type of drive activates the producing reservoir. Under some conditions, they can recommend how to modify the natural drive for greater recovery of oil or gas from the reservoir.



Drilling muds are studied by research men seeking improvements in mixtures and also seeking to learn effects of mud properties on drilling rates. Many other Humble research projects are concerned with improving the equipment, techniques, and materials used in drilling and control of wells.

Research helps

TO PRODUCE

Oil in its underground reservoir is of no use to anybody unless a drill bit can reach it, and unless it can be brought to the surface. A few decades ago no drill had penetrated more than ten thousand feet. And under the production practices of those days only about a fourth of the oil discovered at shallower depths could be recovered.

Today, largely as a result of research and development, oil men can drill twice as deep and recover up to 80 per cent of the oil from a reservoir.

An important part of Humble's research program is devoted to finding methods of further increasing the recovery of oil and gas, and also to finding ways to drill deeper and better wells at lower cost.

The research projects pertaining to recovery problems are directed toward gaining more information about reservoirs and the fluids they contain. These projects cover studies of such subjects as reservoir behavior, mechanics of fluid flow, behavior of reservoir fluids, and well log interpretation.

Drilling problems also are under constant study by research scientists and engineers. One group conducts equip-

Measuring flow of different fluids through formation rock is part of the research project on fluid flow. Studies of the factors affecting reservoir fluid movements and the behavior of the fluids during the productive life of the reservoir help give better understanding of recovery processes.

Electric reservoir analyzer is used in research projects on reservoir behavior. When necessary data is fed to machine, it can define a field's producing characteristics, predict its behavior, and provide other needed information. Analyzer helps in determining sound operating practices for field.

E MORE OIL

ment research in a continuous effort to develop more efficient types of equipment and methods of drilling and producing wells. Other research groups carry on studies of drilling muds, of well cementing materials and techniques, and problems of mud loss in drilling operations.

Problems of operation and control of wells also are under study by the research scientists. These projects include corrosion studies, development of new subsurface instruments, and research on interpretation of thermal measurements.

Some types of research projects are carried on by petroleum engineering groups. These include well completion research projects, studies of drilling techniques, and studies of problems of marine operations.

Reservoir engineering methods, developed through engineering research, have now been put into operational use by Humble. A Formation Evaluation and Reservoir Engineering Training Group has been established at the Houston Research Center.

Research has contributed much to the progress of the oil industry, and there are always new horizons ahead.

Electronic computors are used by research scientists and engineers to solve complex equations involved in reservoir behavior studies. This mechanical brain, one of two in use at the Houston Research Center, quickly performs calculations that would be too complicated for practical solution by men.

Post Office

FROM Africa, out of the jungle colony known as the Gold Coast, came a letter recently which made Humble an intriguing offer. The writer was a native schoolboy. He was the son of a chief, his penciled note declared, and his brother was a great hunter.

His proposal was simple and straightforward:

"You send me one fountain pen," he wrote, "and I will send you one monkey skin."

To the personnel in Humble's mail room, whose duties include opening and routing all incoming mail not specifically addressed to an individual or a department, a letter such as this is all in a day's work.

Every day some 200 to 500 letters addressed only to "Humble Oil & Refining Company, P. O. Box 2180, Houston, Texas" cascade onto their sorting tables. And these letters run the gamut of emotion, from dispassionate business inquiries to warm appreciation to nettled complaint.

There are letters from school children seeking information; from farmers who *know* there's oil on their land; from job applicants; from royalty owners; from people wanting to operate Humble service stations. They come from Germany, France, Japan, India, Australia, and other faraway places.

To a company with 19,000 employees, mail of this sort poses quite a problem. Who should get which letters? Humble's mail room opens "other people's mail" to find out.

Many of the letters, of course, are easy to route. Bills and invoices, queries about credit cards, requests for maps and other touring aids, signals of distress from school children who are doing a theme on the oil industry—all of these find their way to the proper person through long established channels.

But there are others, more enigmatic in nature, which call for a bit of digging. Take, for instance, the change-of-address letter. "Please send my check," someone will write, "to this new address."

To this cryptic message is affixed only the person's name and new address—no mention of the kind of check he is talking about. The check might be one covering an oil royalty payment, a gas royalty, a lease rental, or even an annuity. This type of letter must go the rounds of all the offices possibly concerned until it finally lands on the right desk.

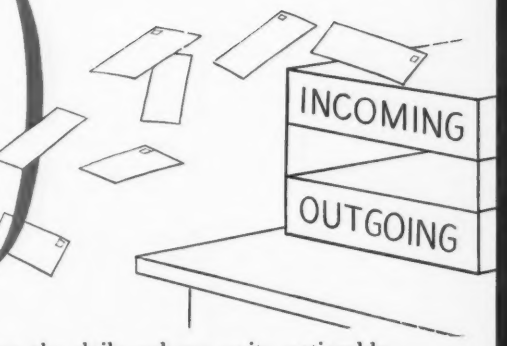
Another epistolary puzzler is the one which asks Humble: "Why haven't you replied to my letter of last month?" One like this, says Mrs. Edna Williams, for 18 years supervisor of the mail room, is impossible to route. The only solution is to write the person and ask for more information.

The letter written in a foreign language used to furrow many a brow in the mail room, but now it presents no great problem. The Comptroller's office has a list of Humble employees, who, as a group, are qualified to translate almost any alien tongue short of Sanskrit. To Humble's Touring Service, incidentally, comes the heaviest volume of overseas mail—mostly requests for maps.

Not uncommon are letters from landowners who think they have de-

Checks galore from credit card holders go into basket for delivery to Treasury.

Box 2180



tected signs of oil on their property. One man wrote that oil was seeping into his water well in such quantities that he could no longer drink the water. All such correspondence is sent to the Production Department, where it is carefully checked out. Who knows? There *might* be oil on that land.

Sometimes Mrs. Williams or one of her assistants opens an envelope and dollar bills shower out. These folding-money remittances are usually in payment for a gasoline bill, and they are forwarded to Humble's Treasury Department. One credit card holder paid his balance due by stapling a dollar bill to a postcard.

Over the years, the mail room has handled many odd varieties of mail: queen bees in tiny packages, live turtles from fun-loving vacationers, rose bushes, trees so tall they had to be stacked against the wall. Much of this mail goes to employees who have no one at home to accept delivery on such items.

"We once received hundreds and hundreds of baby chicks for one employee," Mrs. Williams recalls. "There was so much cheeping going on we could hardly think."

The mail room processes many letters which have obviously been laboriously penned by school children. In the main, school children request pamphlets and magazine reprints on some phase of the oil industry. These requests are promptly filled by the Publications Section. Occasionally, though, an eager beaver will write in to ask for "all the information you have on the oil industry." An order of this size must necessarily be scaled down.

Monday is the big day for Humble's incoming mail, Friday for outgoing. Up to 4000 pounds of mail, including magazines, is sorted and delivered to the proper floors on a Monday. From there, hall boys or girls distribute it to the offices.

Holidays always bring an upswing in both incoming and outgoing mail. Christmas is by far the busiest season, but Easter and Mother's Day also perk up the daily volume quite noticeably. On just one day of last year's yuletide season, the mail room sold close to 20 thousand three-cent stamps to employees.

After 26 years in Humble's mail room, Mrs. Williams can remember only one piece of mail going astray for any length of time. This elusive item, a small package, was finally found among the stored supplies.

All in all, there is little of the humdrum to life in Humble's mail room. Every eight-bushel mail basket that comes in from the main post office, Supervisor Williams says smilingly, is almost certain to bring with it a surprise or a problem—and sometimes both.

P.S.—The letter from the little boy in Africa reached the right person. He got his fountain pen.

At letter-opening table, Mrs. Edna Williams (center), supervisor of Humble's mail room, studies a puzzler in the morning mail and tries to decide to whom it should go.

HE SAW TEXAS FIRST

Shipwrecked on a savage Texas island more than 400 years ago, Cabeza de Vaca needed a charmed life to survive incredible peril

ONE WARM June morning in 1527, just 35 years after Columbus had discovered the New World, five Spanish ships spread sail in the harbor of San Lucar de Barrameda and steered for the West Indies. In command was one-eyed, bearded, barrel-chested Panfilo Narvaez, whose booming voice "sounded as if it came from a cavern." Thwarted in an earlier attempt to unseat Hernando Cortez as *conquistador* of Mexico, Narvaez had wangled from his monarch a commission as Governor of a project to conquer and colonize the country between *El Rio de las Palmas* (the Rio Grande) and Florida.

If they had known what lay before them, none but the bravest among those 600 soldiers and colonists would have sailed beyond sight of their homeland. For theirs became one of the most remarkable stories of hardship and death in all the annals of American exploration.

Desertions and death by hurricane cut the expedition in half before its work was well begun. Of the remaining 300 men, only four lived to tell a tale of incredible suffering in their transcontinental trek from Florida to the Pacific coast of Mexico. In this, the first such journey made by white men, they spent seven years—most of it on foot.

Though the Narvaez Expedition failed in its mission, one of its four survivors brought back to Spain the first accounts of that vast new land which later became the southern United States. He was Alvar Nunez Cabeza de Vaca, treasurer and high sheriff of the expedition. Peril was no stranger to this adventurous son of a proud Spanish family. He had fought 15 years before in the bloody battle of Ravenna, in the Italian campaigns, returning alive but *muy destrozado*—badly shattered and broken. Now, in his middle thirties, he was embarked on a venture from which he would escape even more narrowly with his life.

The *Relaciones*, or accounts which Cabeza de Vaca wrote

of his adventures with the Narvaez Expedition, were first published in Zamora, Spain, in 1542. Written with dignity and restraint and with high regard for truth, the *Relaciones* outrival, for sheer adventure, many a swashbuckling novel. His simple but dramatic account of the years he spent in Texas among the Indians before he finally escaped with three companions make Cabeza de Vaca of special interest to Texans. On his eyewitness stories of Texas and its aboriginals, the first told by a white man, this story is based.

Trouble in the Indies

One of the ancients is said to have remarked, after a disastrous voyage, "I was shipwrecked before I went aboard." Some 120 men of the Narvaez Expedition must have had premonitions of evil, too. When the ships made port at Santo Domingo to take on supplies, these men yielded easily to blandishments of the islanders and deserted Narvaez. This may have infuriated the Governor, but it saved their lives.

In Cuba, the next stop, fresh trouble was in store. A friend of Narvaez offered provisions if the fleet could be sent to Trinidad for them. The Governor dispatched Cabeza de Vaca and Juan Pantoja with two ships to fetch the supplies.

Shortly after the two ships arrived in port, a great hurricane struck, wrecking the town and the ships as well. De Vaca wrote mournfully of the destruction:

> "The sea began to rise very high . . . the rain and the tempest had increased to such a degree . . . all the houses and churches fell, and it was necessary in order to move upright, that we should go seven or eight holding on to each other that the wind might not blow us away . . ."

Sixty crew members had perished when the two ships were lost. When Narvaez rejoined the survivors later, he told how he had saved the other ships by finding a sheltered port and riding out the storm. In the face of the recent disaster, and at the insistence of his fearful men, the Governor agreed to postpone departure for the new lands until the advent of spring. It was now November, 1527.

Late February of 1528 found the expedition under full sail. With Diego Miruelo as pilot, Narvaez obviously had in mind going directly to the *Rio de las Palmas,* in northeastern Mexico.

Either Miruelo failed miserably in his assignment, or fate itself was against Narvaez. The second day out, the fleet ran aground on shoals and remained there, stranded and helpless as beached whales, for 15 days. It remained for a storm to come forcibly to their rescue. Lifting them headlong from their predicament, high winds sent the little ships hurtling off the shoals.

But new winds brewed treachery. No sooner were the ships under way after the first storm abated than fresh gales came up and drove them off course again, until at length the expedition found itself again near the harbor of Havana. But as the ships tried to make port, still another storm came up from the south, driving the fleet northward toward Florida. Here the Spaniards landed on April 15, 1528, on a peninsula between Tampa Bay and the Gulf of Mexico. On the following day, with due ritual and ceremony, Narvaez took possession of the land for Spain.

Disaster in Florida

From the first, Indians in Florida were sullenly hostile. By manner and gesture, they clearly told Narvaez to leave—the sooner the better. But the greedy Governor had already spotted a few gold trinkets worn by the natives. When told they came from a place called "Apalachen," Narvaez resolved at once to find this golden kingdom and strip it of its treasure.

Calling a council, the Governor proposed that the ships be sent along the coast to the *Rio de las Palmas,* with the rest of the expedition proceeding overland. Obviously, he had no conception of the distance involved or the seriousness of the supply problem.

Cabeza de Vaca spoke out against the plan, reminding Narvaez of the poor condition of his men and horses, to say nothing of meager supplies. The Governor turned with a

Indies Hurricane *by E. M. Schiwetz*

Landing in Florida *by E. M. Schiwetz*

derisive bellow upon his treasurer and sheriff. If Cabeza de Vaca were afraid, taunted Narvaez, he could take command of the ships and go in them with the women and such crewmen as were necessary. Cut to his pride's quick, the crestfallen sheriff replied that he would go with the expedition to the last man. As he wrote later, Cabeza de Vaca did not want to ". . . give occasion for it to be said I had opposed the invasion and remained behind for timidity, and thus my courage to be called in question. I chose rather to risk my life than put my honor in such position."

It was a choice, made in pride and anger, that almost cost him his life.

With his fleet sent away, Narvaez set out on May 1, 1528, with 300 men in search of Apalachen. When they found it, nearly two months later (near the site of modern Tallahassee), Apalachen turned out to be nothing but a miserably poor native village. Bitter with disappointment, the Spaniards were hungry and tired enough to trade all the gold and jewels they had dreamed about for the reality of corn, beans, and pumpkins.

After a month or so of fruitless exploration in that vicinity, and with perhaps a third of his men sick, the ill and dispirited Narvaez decided to take to the sea. It was high time. Already, an incipient mutiny had been put down at the last moment by an appeal to the Spaniards' sense of duty and honor. How Narvaez must have longed, at that time, for some way to recall the ships he had sent away!

It was one thing to agree that in the sea lay their salvation. It was quite another to put the proposal into action. The Spaniards had no ships, nor the means to build any. According to Cabeza de Vaca, "This appeared impossible to every one; we knew not how to construct, nor were there any tools, nor iron, nor forge, nor tow, nor resin, nor rigging . . . and above all, there was nothing to eat while building."

In the desperation of their plight, the Spaniards improvised ways to put together a few clumsy craft. One man made a bellows of deerskins. Others melted down their stirrups, armor, spurs, and other metal objects to make the nails, saws, and hatchets they needed. From pine trees they extracted resin to calk the craft. And from the tails and manes of horses they fashioned ropes and rigging.

By September 20, 1528, they had five crude, flat-bottomed barges. Into them two days later piled 242 men, leaving the clumsy craft so crowded that "water came up to within one span of the gunwales." It was a situation that might have spelled disaster on a placid lake, much less the open Gulf. Without a navigator among them, and hardly an experienced sailor, the desperate men put out to sea.

Shipwrecked on Texas

Picking its way close to shore as far as possible, the forlorn little flotilla steered past Pensacola Bay and came to the area of present Mobile. Here two men went ashore for water and never returned. Back to sea went the rest, and soon found themselves in dangerous circumstances. Their food supplies had dwindled perilously low and their water was useless; the horsehide waterbags had rotted. Men died in agonies of thirst, and survivors were so weak they could hardly pull an oar.

On they toiled somehow, with only prayer to sustain them,

until they came at length to the mouth of the Mississippi. Here they found water fresh enough to drink, but as they tried to enter into the stream a great current combined with northerly winds to drive them back into the Gulf.

After a few days of agonizing voyage, the boats became scattered. De Vaca found himself and his crew alone on the open sea. At day's end, however, two other boats hove in view—the nearer craft under command of Narvaez.

Approaching within hailing distance, Cabeza de Vaca called out to the Governor that they join the third craft and keep together. Narvaez replied that ". . . he wished to reach the shore; that if I wished to follow him I should order the persons of my boat to take the oars . . ."

This De Vaca tried to do, but found his men too weak to keep up with Narvaez, who had chosen for his crew the strongest men in the expedition. When he called on the Governor for a tow rope, Narvaez selfishly replied that ". . . each should do what he thought best to save his own life; that he so intended to act; and saying this, he departed with his boat." It was fitting justice, perhaps, that Narvaez was doomed to lose his life in the waters of the Gulf some time later, while Cabeza de Vaca survived.

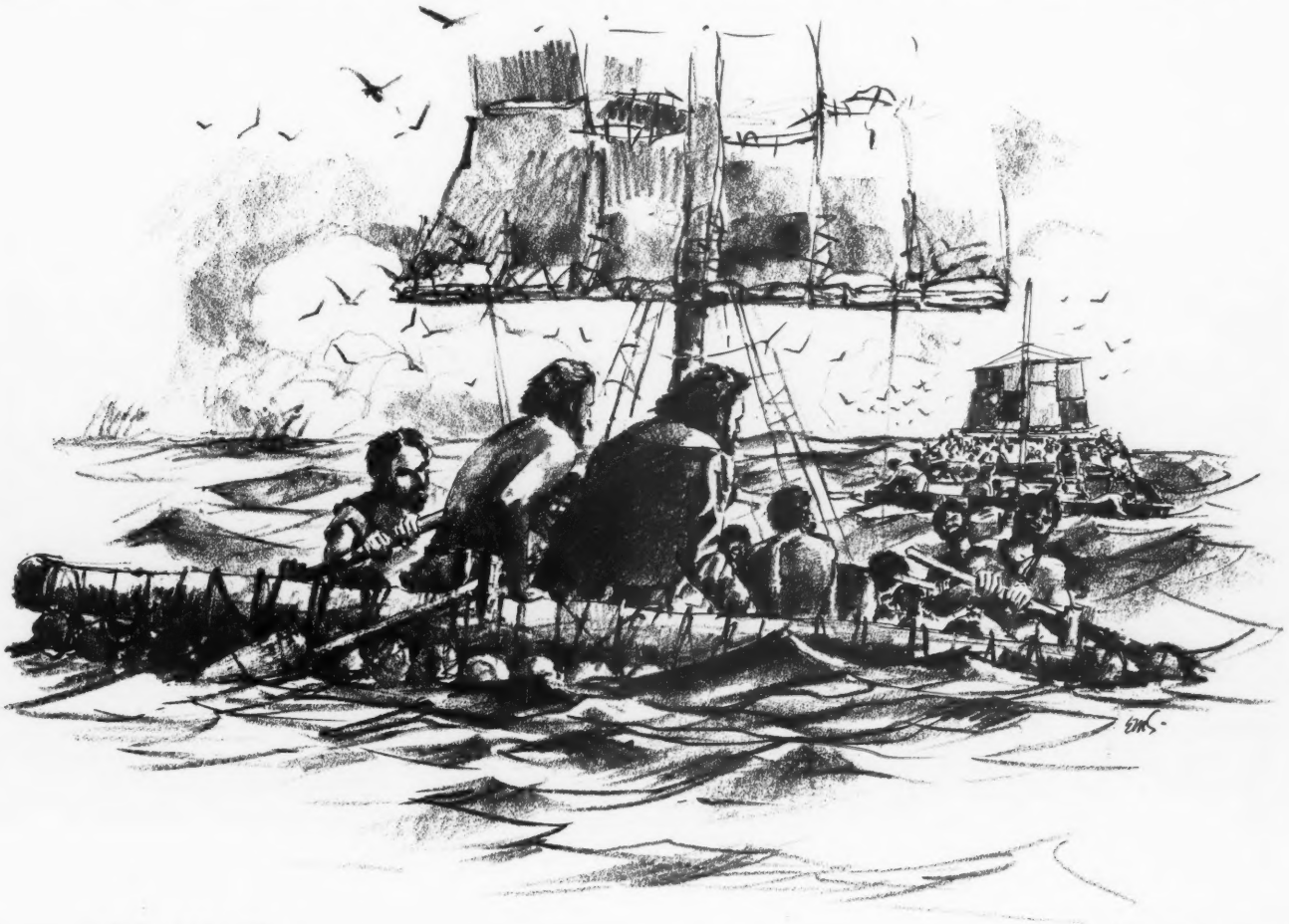
Deserted by his commander, Cabeza de Vaca succeeded after some effort in joining the third boat—but a furious storm soon separated the two. Things by now had reached an almost hopeless state. As Cabeza de Vaca would record later, "Because of the winter and its inclemency, the many days we had suffered hunger, and the heavy beating of the waves . . . all who were on my boat were fallen on one another, so near to death that there were few among them in a state of sensibility."

Somehow, De Vaca summoned up strength and will to remain awake and hold weakly to the steering oar. Then, just before dawn, his ear caught the roar of surf breaking upon a beach. It was not far away. At sunup, they were delivered in this manner:

> "Near the shore a wave took us, that knocked the boat out of water the distance of the throw of a crowbar, and from the violence with which she struck, nearly all the people who were in her like dead, were roused to consciousness. Finding themselves near the shore, they began to move on hands and feet, crawling to land into some ravines. There we made fire, parched some of the maize we brought and found rain water. From the warmth of the fire the people recovered their faculties, and began somewhat to exert themselves. The day on which we arrived was the sixth of November (1528)."

After a 45-day Odyssey, the Spaniards in Cabeza de Vaca's crew had come to rest upon the coast of Texas. Just exactly *where,* historians cannot precisely agree upon. But it is generally thought to have been Galveston, or an island near Galveston. One authority makes a good case for Velasco, pointing out that it may have been Velasco Island before it sanded up, joined the mainland, and became Velasco Peninsula.

(To be concluded in the November-December issue.)



Afloat in the Gulf *by E. M. Schiwetz*

HOW TO PLAN A WILDCAT

THE cost of a rank wildcat well today may range anywhere from $100,000 to more than $1 million. Such exploratory wells in unproven territory have not always been so expensive, but they have involved too much financial risk to leave very many details to chance.

In an effort to bring to each exploratory well the best possible organization, planning, and procedure, Humble in the past three years has developed a "wildcat planning meeting." This meeting is an occasion where key personnel gather to plan the project. The meeting usually lasts from two to three hours and is designed to produce a complete understanding of methods and aims and to achieve the best results.

Typical wildcat planning meeting finds key supervisory people from Exploration and Production departments informally working out plans. Maps of the area and logs from dry holes in the vicinity help bring to the attention of all the fullest possible information about the prospect's land and lease situation, formations to be drilled, possible difficulties to be encountered.

WHO? The people who take part in each "wildcat planning meeting" from the Division Office are: Division Geologist or his assistant, Division Production Geologist, Division Superintendent or his assistant, Division Geophysicist or his assistant, and Division Petroleum Engineer; from the District Office: Production Geologist (he will sit on the well), Production Superintendent, Petroleum Engineer, and Toolpusher (he is in charge of the rig).

Before this group meets to lay out the final operational plan for the wildcat, the way has been paved by the efforts of a multitude of specialists over a period of years.

Maybe 10 years ago or more a surface geologist had found that outcroppings in the area to be drilled showed some promise. His report may have led to a more careful check of the area by gravity meter or by geophysics. In the ensuing years, some other company or individual may have drilled a wildcat somewhere in the area, and from that "dry hole" a scout added some information to the growing fund of knowledge. Perhaps a few samples from the unsuccessful venture came under the eyes of a Division Paleontologist.

Based on all of the information accumulated, an Exploration Geologist recommended and received approval to lease acreage covering the formation. Landmen and lease men started blocking up the area, covering all acreage that appeared to be underlain by what looked like a favorable formation for containing oil or gas.

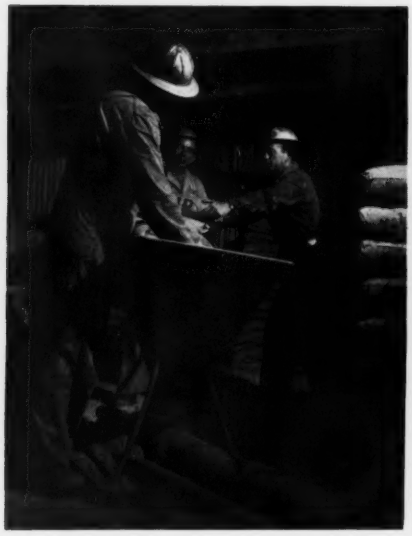
The group in the wildcat planning meeting uses all of this information as the basis for discussion and for decisions.

WHEN? After all of the foregoing operations have been completed and the desired acreage has been placed under lease, the Division Geologist requests that a wildcat test be drilled. When approved, the wildcat is budgeted. An approximate date is set for the venture, and the planning meeting is called. Date for the planning meeting usually is two to three weeks before actual clearing of drilling site and moving in of equipment starts.

WHY? Everyone who attends the planning meeting has a chance to become thoroughly acquainted with: land and lease situation of the prospect, including any unusual conditions; the geology of the prospect, including the promising formations the bit will seek to tap; and the potential hazards and unusual drilling conditions likely to be encountered. In short, the purpose of the meeting is to develop complete understanding and the teamwork needed to complete the project successfully.

WHAT? Specifically, what does the group discuss in the wildcat planning meeting? Based on the geologic information at hand, revealed by logs and maps, the actual drilling procedure is outlined. Agreement is reached on the size of rig needed to drill to the depth geologists want to explore; the size of hole to be drilled; where casing will be set; the number of cores to be taken and at what depths they should be cut; the number of drill stem tests to be made; the type of mud or other drilling fluids to be used; cementing plans; and the number and type of logs to be run. Preparation of site, moving in of equipment, and provision for water and fuel complete the planning.

The end result of such careful planning makes it possible for the Production department to calculate the probable cost of a wildcat with a degree of accuracy that had never been possible before the planning meetings were started. Moreover, as one geologist put it, "full understanding of details about the project by both Exploration and Production department people brings about greater teamwork, a better knowledge of objectives, and a keener interest and enthusiasm for developing the wildcat test into a producing oil or gas well."



Agreement is reached on type of mud . . . number of drill stem tests to be made . . . cores and at what depths to cut . . .

. . . number and type of logs to be run . . . size and amount of pipe needed to carry the well to the desired depth.

CONTINUED

Bulldozers push boulders and carve rocky soil from the sloping canyon wall to fill in a level site for the derrick. Because the site was on a public road (upper right) leading to nearby Sitting Bull Falls, enough of the bank had to be cut away to allow the road to bend slightly around the derrick. While this work went forward, a water well (upper left) was spudded.

CAREFUL PLANNING KEPT THIS WILDCAT ON SCHEDULE

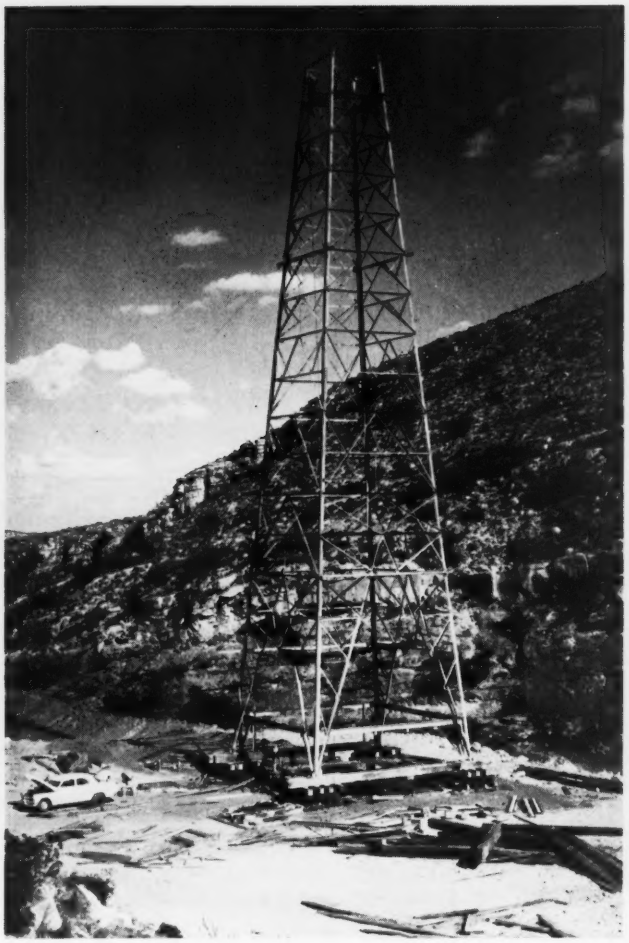
In the rocky depths of Last Chance Canyon, deep in the Guadalupe Mountains 30 miles southwest of Carlsbad, New Mexico, a wildcat well was spudded in on October 14. Humble's Huapache Unit No. 1, in Lincoln National Forest, was planned with extreme care at a meeting held in Roswell, New Mexico, about mid-September. Participating were Exploration and Production department supervisory people from the Midland Division Office, from the Hobbs District Office and from the Roswell Area exploration office.

In spite of the difficulties of the terrain, carefully laid plans enabled the contractors to develop the site, move in and erect the derrick and install equipment, and spud the well on schedule. Pictures on these pages show the benefits of advance planning.

Water well was drilled about 100 yards from the wildcat site. Water was found, but not enough to supply the wildcat.

Only other source was Sitting Bull Falls two miles away, where crewmen went for refreshing drink during noon hour.

Two miles of four-inch pipeline were laid from stream fed by Falls to derrick shown here as the crew started upward.



Nearing the top, derrick builders saw . . . big trucks bouncing in over dusty roads with the heavy drawworks, pumps, power plant.

Unitized equipment, moving to the site in order as needed, was quickly put in place. Within two days after the derrick builders had finished work virtually all machinery was in place.

Trucks brought in the smaller pieces, and though there was considerable adjustment to be made, spudding in began on schedule 21 days after the first work had been started.

Eighteen Employees Become Annuitants

Eight are from Humble Pipe Line; five from Production; four from Refining; one from Houston Office. All but two of group have more than 20 years service with Humble

EIGHTEEN employees of the Humble Companies joined the ranks of annuitants during a 2½-month period between July 26 and October 9. Among the group, Marvin P. Crouch, engineer at Lytle Station, Humble Pipe Line Company, has the longest period of service with 30 years.

HUMBLE PIPE LINE COMPANY

HERMAN J. COOPER, stock gauger at Ingleside Station, August 8—more than 18 years. He has some non-accredited service with the Company spent at Mexia and Luling in 1928 and 1929. He worked later at Aransas Pass in 1933 and with the Tank Department in 1934. Since May, 1934, he has been with Humble continuously at San Antonio, Ingleside, West Columbia, Aransas Pass, Corpus Christi, Harbor Island, and Refugio. He owns a home in Aransas Pass, and he plans to open a small business on his property there.

MARVIN P. CROUCH, engineer at Lytle Station, September 29—30 years. Mr. Crouch started with Humble Pipe Line Company at Webster Station; he moved to Lytle Station in 1927 and has worked there since except for a short period. His entire 30 years with Humble were spent without a disabling injury. He likes hunting and fishing. After retirement he plans to live on a farm near Devine, Texas, and raise cattle.

PERCIVAL P. HOOVER, pipe liner at Webster Station, September 11—after more than 27 years. He began work with Humble at Webster Station as a laborer. He has also worked at West Columbia, Friendswood, Hastings, and Baytown. He plans to live in his home at Alvin, Texas, do carpenter work in his own workshop, follow the local football games, and raise a garden. He married the former Bessie Albritton. They have been married 38 years and have three children and five grandchildren.

TILLMAN B. LANGSTON, engineer at Truscott Station, September 4—more than 20 years. He began with Humble at May Station as an operator; he has served at Ballinger, Burnett, Merten, and Truscott, also. His special interests include flower raising, fishing, and woodworking. He has been interested in woodworking all his life, and he did much of the work in his present home. He tells this incident about himself: One time while warming up a racing boat, he turned it over. The results were a pair of lost glasses and a damaged boat that included a broken propeller and crankcase. He will maintain his home in Haskell, Texas.

GLENN R. MCGINNIS, oiler at Refugio Station, October 9—more than 26 years. Mr. McGinnis began his career with Humble at Station C, where he remained until his recent transfer to Refugio. He has worked his entire time without a lost time injury. He likes fishing and yard work and intends to spend considerable time at these hobbies during retirement. He will make his home in San Antonio.

EMMETT B. MCKIBBEN, assistant district gauger at Friendswood Station, July 26—more than 29 years. He has worked at Webster, Pierce Junction, and Friendswood. He was connection foreman for Humble Pipe Line when it hooked up the first well at Friendswood in 1937. Mr. McKibben says of his future activity: "I have a hobby shop where I am going to spend quite a lot of time. Later on we expect to move to Missouri, our old home state, but we'll come back to Houston to visit."

JESSE W. MORRIS, pipe liner at Hawkins, August 16—more than 28 years. He joined Humble at Ranger as a laborer and later worked at Brownwood, Chaney, Cisco, and Longview. He has been at Hawkins since 1942, where he worked as a field engineer. He plans to buy a house in Rising Star and pursue his hobby of gardening.

JAMES D. WILLIAMS, oiler at Hawkins, July 30—almost 22 years. He was employed at Groesvenor as a laborer. He worked at Bangs Gas Plant for Humble Oil & Refining Company and at Cross Cut as a pumper. Mr. Williams has served the Pipe Line Company at Kilgore, Arp, Longview, Pittsburg, and Hawkins as pipe liner, engineer, and oiler. He has a 640 acre farm near Gilmer, Texas, where he is raising beef cattle.

PRODUCTION DEPARTMENT

ARCHIE H. CASE, lease pumper-gauger at Hardin, August 16—more than 27 years. He was employed at Sour Lake as oiler and pumper and later worked in several fields in the Gulf Coast, East Texas, and Southwest Texas divisions as rotary fireman, helper, and driller. He has been lease pumper-gauger since 1952. While a driller Mr. Case and his crew worked 36 hours straight through a blowout at Raccoon Bend without a disabling injury. Too, he directed drilling crews for 15 years without a lost time injury and his entire career was free of disabling injuries. He is building a home in Hardin, Texas, where he will live and oversee the operation of his farm.

JESSE W. CROCKETT, pumper at Government Wells,

October 1—more than 28 years. He began work for Humble at Breckenridge as pumper. Later he worked for the Company at Avoca, Government Wells, and Stratton as roustabout, derrickman, rotary helper, tool dresser, gangpusher, and pumper. He will make his home in the heart of the deer and turkey country near Buchanan Lake. During retirement, he will pursue his hobbies of growing flowers, hunting, and fishing.

ESCOR G. GIFFORD, lease pumper-gauger at Gladewater, July 29—more than 27 years. Mr. Gifford was employed at Wortham as a helper. Later, he served at Nocona as roustabout and pumper; at Kilgore as electrician and fireman. He moved to Gladewater in 1931 and has worked there as pumper-gauger since 1937. Fishing, gardening, and traveling are among the hobbies he will pursue during retirement. His home is at Spring Hill about 7 miles north of Longview. Mr. Gifford married the former Josie Neal; they have been married 40 years and have three children and three grandchildren.

CHARLES B. JINKS, roustabout at Friendswood, July 31—almost 26 years. He was employed as a rotary helper at Corsicana. Later he worked at Powell, Wortham, Jacksonville, Yates, Pyote, Olney-PL, Raccoon Bend, Gladewater, Thompsons, Conroe, Hastings, and Friendswood. He has built a home in Conroe, Texas, where he will live, raise a vegetable garden, and do some fishing during retirement. He also plans to travel some.

MARCUS R. SCOTT, rotary driller at Friendswood, September 29—more than 28 years. Mr. Scott served the Company as a rotary helper, derrickman, fireman, driller, and pumper in a number of well known oil fields. He drilled the discovery well at Moss Bluff for Humble. In 1951, he won a Coin-Your-Idea award for an automatically releasing drilling-line clamp that saves rig time by eliminating a man's climb up the derrick to untie a connection between the catline and drilling line. He also has other Coin-Your-Ideas awards to his credit. Among the unusual events of his career, he includes an incident in 1925 at Cotton Valley, Louisiana, in which a steel derrick was pulled in while all crew members were working on the floor. Fortunately, no one was hurt. He has 361 acres 7 miles from Dayton, Texas, where he will pursue his hobbies of cattle raising, gardening, and watching wrestling matches on TV.

BAYTOWN REFINERY

CLEOPHAS T. BONNER, handyman in the Machine Department, August 17—more than 28 years. He began with Humble in the Asbestos Department as an insulator helper; he transferred to the Machine Department in 1927. Immediately following retirement, he will travel in the United States, including visits to brothers and sisters in Alabama and Florida.

ISAAC W. CARR, insulator first, September 22—almost 25 years. He joined the Refinery as a laborer in the Labor Department; he later worked as insulator helper, insulator, insulator second and first. Fishing, gardening, farming, hunting, and watching television are among his special interests. He married Eula Williams. They have been married 40 years and have seven children and seven grandchildren. He will visit a son in California and return to Baytown to live.

HENRY B. FIELD, operator at Power Plant, August 1—almost 26 years. Mr. Field began his employment as a helper in the Pipe Department. He has worked in the Utilities Department since October, 1928. His hobby is fishing. He married the former Mabel F. English; they have been married 34 years.

CARMEN NEGRETE, laborer special, September 5—more than 29 years. His entire service with Humble has been at the Refinery in the Labor Department. His special interests include television and baseball. His wife's maiden name was Anita Murlya; they have been married 49 years and have two children and five grandchildren. All live in Baytown. During retirement, he plans to visit relatives in Uvalde, Texas; Mexico; and California.

HOUSTON OFFICE

MRS. LIGON M. HOLT, receptionist in the Comptroller's Department, September 15—more than 16 years. She is the first woman to be employed by Humble in a Production Department field office of the Gulf Coast Division. She began at Humble, Texas, in 1932 and transferred to the Gulf Coast Division Office in Houston in 1938. She has served as warehouseman, office clerk, assistant mail supervisor, and receptionist. Once while working at Humble, Texas, three men of doubtful repute tried to force her to write a check for $3,000 that they claimed Humble owed them. She finally persuaded them to go to Houston and gave them a note to Captain Honea, chief special officer. She told them that he would see that they were taken care of. Her hobbies include music, and she has served as organist at churches in Mississippi and Texas since she was 12 years old. At present she keeps house for one of her sons, W. Granville Holt, who owns a welding business. She is now learning to weld, and she plans to take a mechanical drawing course.

Deaths

During the past two months, five active employees and five annuitants have died.

Active employees who died are: FRANK V. GALLOWAY, 54, pipe liner at Alice connection, on August 30; RAY D. GRAY, 44, senior treasury auditor in Comptroller's Department, on September 11; HARVEY J. GUNTER, 52, roustabout at Friendswood, on September 2; JOSEPH W. WYNNE, JR., 33, office assistant in the Annuities and Benefits Division, on September 16; EZRA L. WHITACRE, 60, gas plant operator at Katy Gas Cycling Plant, on September 18.

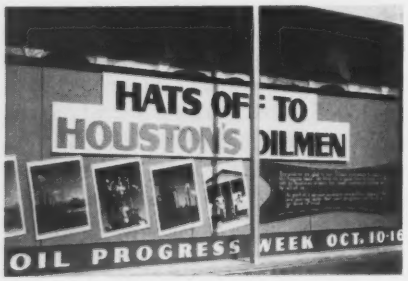
Annuitants: JOHN B. BEAUGH, 61, insulation supervisor at Baytown Refinery before his retirement, died on August 7; CORNELIUS CHARLES, 62, laborer at Baytown Refinery before his retirement, died September 28; EMORY J. DODSON, 62, roustabout gangpusher at Athens before his retirement, died September 17; EDWARD A. GOLDSMITH, 65, system coordinator clerk in Production Operating in the Houston Office before his retirement, died October 3; ARTHUR H. WHEATLEY, 75, lease pumper-gauger at Goose Creek before his retirement, died on September 18.

By the way . . .

HUMBLE HELPS OIL PROGRESS WEEK

Contributing to the success of Oil Progress Week, October 10-16, were hundreds of Humble employees who actively participated in the nationwide effort to promote better understanding of the oil industry.

Some of these employees served as members of local and regional planning committees. Others were volun-



teer speakers who told the oil industry story to various civic and service clubs and other special groups during Oil Progress Week. Many more were the unsung behind-the-scenes workers who performed countless chores to help make the celebration a success.

As usual, the annual Oil Progress Week promotion was given wholehearted support at all levels throughout the Humble Companies. Letters from Presidents Hines H. Baker and O. Q. Lomax, and from the directors in charge of each operating department, encouraged employee participation. Banners and bumper strips were displayed on Humble properties and vehicles. The event was publicized in the various Company publications and news letters, and in printed folders mailed with all employee credit card statements. Dealers and agents were furnished window posters and other promotional materials for use in service stations.

Humble also helped publicize Oil Progress Week with special advertisements in approximately 600 newspapers, on 61 outdoor billboards, on football broadcasts and telecasts, and on the Texas in Review television program. Special displays were created for the State Fair of Texas exhibit and for the Company's home office building in Houston. Each of the four division Sales offices had special displays for use in its area. Postage meter slugs advertising Oil Progress Week were used on Humble mailing machines and a printed message was enclosed in all customer statements and royalty payments.

Numerous oil industry stories, articles, and pictures prepared by Humble people were used in newspapers and magazines throughout the Southwest during Oil Progress Week. The Company's film library furnished copies of the O.I.I.C. movie, "The Story of Colonel Drake," for several group showings in Texas and Louisiana, and for two television showings.

Among other Oil Progress Week activities, Humble was host to a group of 24 Houston high school students, each of whom had been selected as "Oil Man for a Day."

GONZALEZ NAMED CONSULTANT

Richard J. Gonzalez, Director in charge of Economics and Statistics, and Treasurer of the Humble Company, has been appointed to serve as a consultant to Arthur S. Flemming, chairman of the Cabinet Committee on Energy Supplies and Resources Policy.

Dr. Gonzalez is one of five consultants named to work closely with John Ed Warren, vice president of the National City Bank of New York, who is responsible for the oil and gas aspects of the task force study.

THE COVER PAINTING

With deftness and precision worthy of the scientific nature of his subject matter, Houston's talented young artist, Bob Wygant, has captured the spirit of research in his composite painting on the cover of this issue. Using photographs as models, Wygant painted this montage with such realism that it was chosen for reproduction as a photomural in the lobby of the new Houston Research Center.

The HUMBLE WAY

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Published every other month for employees and stockholders

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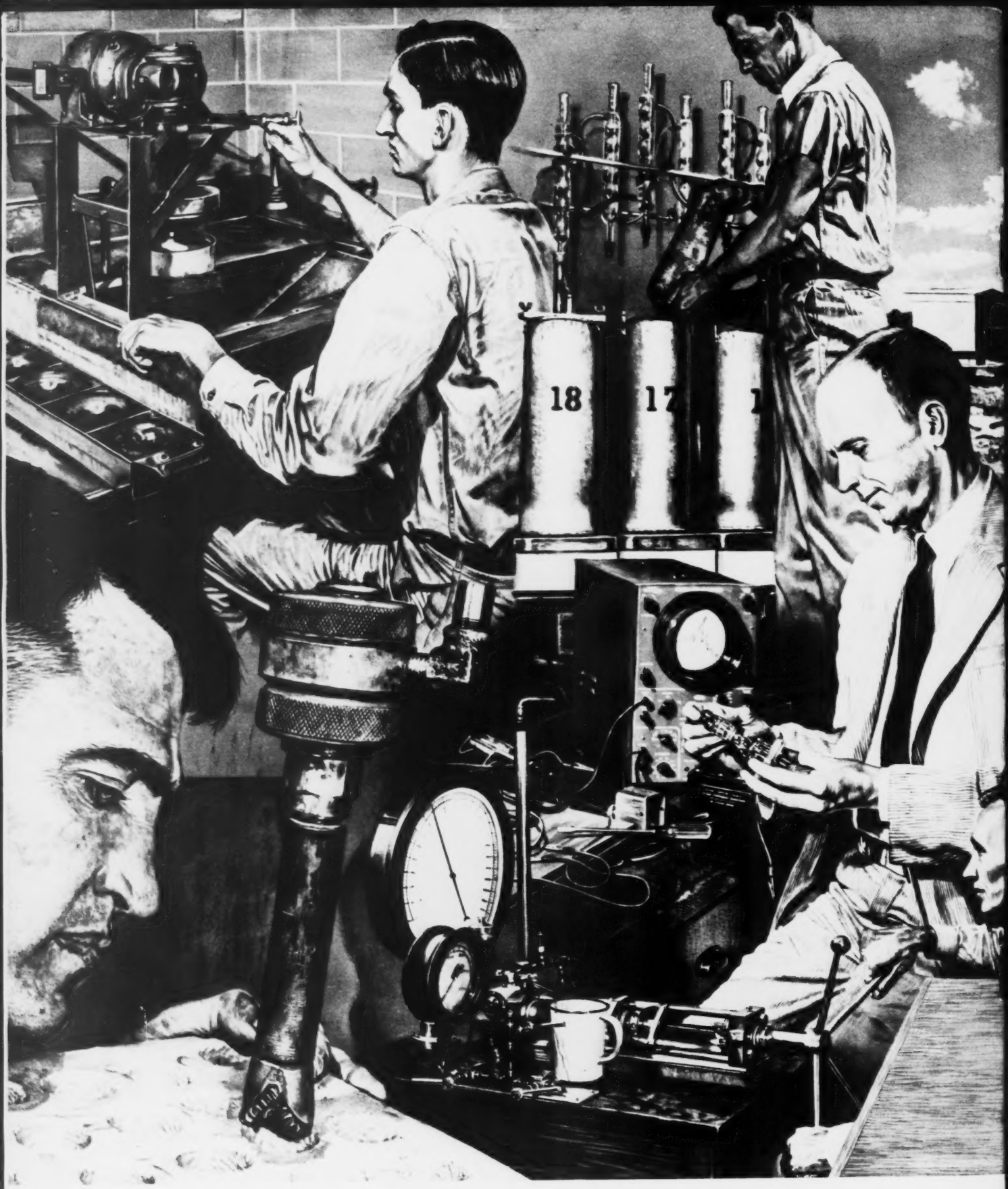
No place for a victim of acrophobia! At a dizzy height, Humble surface geologist chips away at an outcrop thrust up from the very brink of a California precipice.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